Women’s PFA analysis

# Aim

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| --- | --- |
| Data tables | Period |
| Number of prison sentences by PFA | 6+ years |
| Number of prison sentences < 6 months | 6+ years |
| Number of prison sentences < 12 months | 6+ years |
| Imprisonment rate by PFA | 6+ years |

|  |  |
| --- | --- |
| Local fact sheet visualisations | Period |
| Number of prison sentences by length (<6m; <12m and 12+m) | 10 years |
| Imprisonment by offence group | Latest year |
| Number if community; suspended; and custodial sentences | 10 years |

# Structure

## Criminal Justice Statistics

### PFA\_data\_cleansing

Importing Criminal Justice Statistics court outcomes by Police Force Area (2019) and newer data from 2017 to 2021.

Removing duplicates and preparing for merge.

Filtering data to include:

* Immediate custody
* Community sentence
* Suspended sentence

Filtering data to exclude:

* Children
* Misc and unknown police forces and City of London PFA

Outcome: Outputting to new CSV for further analysis

New CSV: ‘../interim/PFA\_2009-21\_women\_cust\_comm\_sus.csv’

### PFA\_cust\_comm\_sus\_sentences

Importing CSV created in previous notebook.

Filtering to remove sentence lengths before grouping by PFA, year and sentencing outcome.

Outcome: Outputting our final dataset which is used for visualising figure 3 in our PFA factsheet

New CSV: ‘processed/PFA\_2009-21\_women\_cust\_comm\_sus\_FINAL.csv'

### Women\_cust\_sentence\_len

Importing CSV produced from PFA\_data\_cleansing

Filtering for immediate custodial sentences

Recategorising sentence lengths into:

* less than six months;
* six months and less than 12 months; and
* 12 months or more.

Grouping by PFA, year and sentence length.

Outcome: Outputting to new CSV for further analysis. This data is also used for visualising figure 1 in our PFA factsheet

New CSV: ‘interim/PFA\_2009-21\_women\_cust\_sentence\_len.csv’

### PFA\_short\_sentences

Importing CSV produced in previous jupyter notebook.

Filtering years of interest, in this case 2014 onwards.

We are looking to produce two new datasets which will result in our final tables to show the number of women sentenced to immediate custody in England and Wales by Police Force Area for (a) less than six months and (b) less than 12 months.

#### Method

Filtering for sentences of desired length

Crosstabbing values to produce table showing number of sentences given by each PFA since 2014.

Adding a percentage change column calculation since the first year.

Outcome: Outputting our dataset which is used for our final table

New CSV: ‘/processed/PFA\_less\_than\_six\_months.csv’

New CSV: ‘/processed/PFA\_under\_12\_months.csv’

### PFA\_custodial\_sentences

Importing CSV produced in PFA\_cust\_comm\_sus\_sentences

Filtering for data from 2014 and to just include immediate custody.

Crosstabbing values to produce table showing number of custodial sentences given by each PFA since 2014.

Adding a percentage change column calculation since the first year.

Outcome: Outputting our dataset which is used for our final table

New CSV: ‘/processed/PFA\_custodial\_sentences.csv’

### PFA\_offences

Importing CSV produced in PFA\_cust\_comm\_sus\_sentences

Filtering for data from latest available year and to just include immediate custody.

Grouping by PFA and offence.

Crosstabbing to produce table showing the number of each offence type by each PFA resulting in custody for the latest year.

Normalising the results to calculate percentage break down by PFA.

Outcome: Outputting our dataset which is used to produce figure 2 on in our PFA factsheet

## Section progress

|  |  |
| --- | --- |
| Data tables | Achieved? |
| Number of prison sentences by PFA | ✅ |
| Number of prison sentences < 6 months | ✅ |
| Number of prison sentences < 12 months | ✅ |
| Imprisonment rate by PFA |  |

|  |  |
| --- | --- |
| Local fact sheet visualisations | Achieved? |
| Number of prison sentences by length (<6m; <12m and 12+m) | 🟡 Data produced |
| Imprisonment by offence group | 🟡 Data produced |
| Number if community; suspended; and custodial sentences | 🟡 Data produced |

## ONS population statistics

### LA\_female\_population\_2001\_20

Importing raw data from ONS mid-year estimates (with 2021 geog LA codes)

Filtering out Scotland and Northern Ireland.

Filtering further to only include adult women.

Data cleansing to aggregate population values across age ranges.

Outcome: Outputting to new CSV in preparation for data merging so we have a population figure for each PFA.

New CSV: ‘interim/LA\_population\_female\_2001\_2020-cleansed.csv’

### LA\_PFA\_matching

Importing CSV from previous jupyter notebook along with raw data from ONS with PFA by LA code.

Creating dictionary of values from the raw ONS dataset matching LA code to PFA name and adding to the population CSV created in the last notebook.

Dropping City of London rows and standardising Devon and Cornwall entries to match across datasets.

Outcome: Outputting to new CSV for further analysis

New CSV: ‘interim/LA\_population\_female\_2001\_2021\_PFAs\_cleansed.csv’

PFA\_population\_custody\_merge

**Aim: Merge PFA population data with PFA custodial sentence data**

Importing CSV from previous jupyter notebook along with PFA custodial sentences dataset created earlier ‘/processed/PFA\_custodial\_sentences.csv’.

Melting custodial sentences dataframe; sorting by PFA and year; re-indexing ready for merge.

Filtering PFA population by year range and performing groupby PFA and year to collapse all LA codes into PFAs.

2021 population issue

Because we only have ONS population data for 2020, but have sentencing data for 2021 the merge won’t work as expected (294 rows vs 336 rows). So we need to use 2020 figures for 2021.

Filter for 2020 population figures; copy; then reassign the ‘year’ value to 2021 before appending back to the original dataframe. Then sort by PFA and year; and reindex.

Joining

Then join the two dataframes, adding an rsuffix to further validate the merge before dropping unnecessary columns and saving out to final processed CSV.

Outcome: Outputting to new CSV ready for final analysis and calculation of PFA imprisonment rates

New CSV: ‘processed/merged\_rate\_pop\_2014-2021.csv’

### PFA\_imprisonment\_rates\_2014-2021

Aim: To calculate final imprisonment rates for each PFA

Importing CSV from previous notebook

Using groupby to combine all PFAs and calculate an overall imprisonment rate for England and Wales in each year.

Calculating new imprisonment rate column and checking against previously published values.

Saving out long data CSV for further analysis if needed.

Performing crosstab to present data in final format and sorting by latest year.

Outcome: Outputting final imprisonment rates by PFA to new CSV

Outcome: Outputting to new CSV in a long format for future analysis if needed

New CSV: ‘processed/pfa\_imprisonment\_rates\_2014-2021\_final\_table.csv’

New CSV: ‘processed/pfa\_imprisonment\_rates\_2014-2021.csv’

## Section progress

|  |  |
| --- | --- |
| Data tables | Achieved? |
| Number of prison sentences by PFA | ✅ |
| Number of prison sentences < 6 months | ✅ |
| Number of prison sentences < 12 months | ✅ |
| Imprisonment rate by PFA | ✅ |

# Visualisations

Aim: To produce three visualisations for the individual PFA factsheets.

|  |  |
| --- | --- |
| Local fact sheet visualisations | Period |
| Number of prison sentences by length (<6m; <12m and 12+m) | 10 years |
| Imprisonment by offence group | Latest year |
| Number if community; suspended; and custodial sentences | 10 years |

The necessary datasets have already been produced (see section progress above).